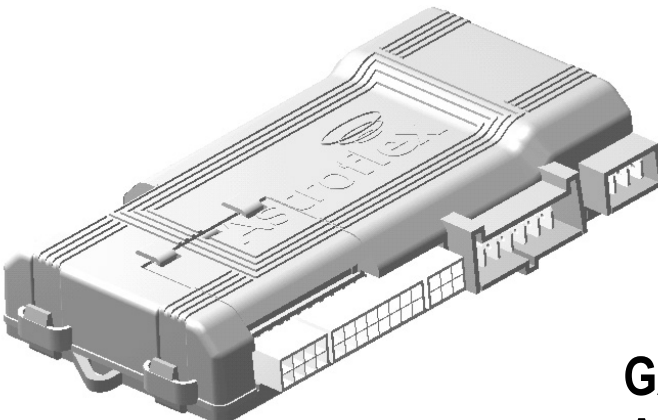
AstroStart

REMOTE CONTROL ENGINE STARTER

INSTALLATION MANUAL

XRT - BBK - BBF - BBU - BBW

CONTROL MODULES



FOR ALL GAS, DIESEL AND HYBRID POWERED VEHICLES

THIS PRODUCT MUST BE INSTALLED BY A QUALIFIED INSTALLER.

When this product is installed in a manual transmission vehicle, the installation must be done with a manual interface (not included - No. RS-MI).

(Instructions en français au verso)

PATENT NUMBERS
CAN 1.130.426
USA: 4.345.554 - 5.614.883
5.617.819 - 5.673.017

AND OTHER PATENTS PENDING

August 2007

IBRSS5224

IMPORTANT NOTICE
TO INSTALLERS!

The control module included in this kit must be interfaced according to the type of vehicle in which it is installed. The control module **won't, IN ANY WAY, monitor the position of the gearshift lever** during a remote start.

It is factory set to "Manual Transmission" mode.

See Stage 1 - Level 16 on page 22 for programming options.

- For vehicles equipped with a MANUAL TRANSMISSION **you must pay special attention** to the instructions identified with the following pictogram and follow the corresponding instructions.



- When this product is installed in a manual transmission vehicle, the installation **must be done safely using a manual interface** (not included – part no. RS-MI). This module is designed to force the user to ensure that the gearshift lever is in neutral and that the parking brake is activated for the system to proceed to ready mode for remote start.
- Make sure you deliver the User Manual to the customer
- Make sure you post the two warning labels in the appropriate locations:
  - the smaller one must be visible in the driver's side window;
  - the other must be placed near the hood release lever.
- Make sure you hang the "For your safety" card on the rear-view mirror.
- Also make sure all verifications and testing (for automatic or manual transmission vehicle) is done before and after the installation is done.

Table of contents

VERIFICATIONS AND TESTING TO BE DONE BEFORE THE INSTALLATION

To ensure that the installation and the use of this product are safe,
<u>you must</u> follow the instructions in this manual.
Please pay special attention to the following points.

AUTOMATIC TRANSMISSION VEHICLE

- Ensure that the vehicle **<u>cannot</u>** be remote started when in gear. Also ensure that the gearshift lever **<u>cannot</u>** be moved out of the "Park" position without first applying the brakes.

  If it is possible to crank the engine while the gearshift lever is in gear, or if you can move the gearshift lever out of "Park" position without pressing on the brakes, contact our Technical Assistance Department at **1-800-461-8223**. A technical advisor will help you with an appropriate and safe solution based on the make and model of the vehicle on which you are working.

- Once the installation is completed, you must check ALL safety devices described in the "POST-INSTALLATION AND SECURITY TESTS" on page 26 of this guide.

MANUAL TRANSMISSION VEHICLE

- Make sure you have in hand a “manual interface module” part no. RS-MI (not included) specially made to safely install the remote starter in a manual transmission vehicle.
- Make sure that **<u>all</u>** door pin switches work and that the parking brake is operational (i.e. it can immobilize the vehicle). These security features must be operational before the installation of the remote starter.
- Make sure it is **impossible** to access the gearshift lever without opening a door or the hatchback.

  If the gearshift lever can be accessed without opening a door (i.e. convertibles) or if opening any one door does not break the safety sequence, we **strongly** recommend adding a motion detector (microwave) to prevent a start if any activity is detected near the gearshift lever. See details on the manual interface instructions.

- Once the installation is completed, you must check ALL safety devices described in the "POST-INSTALLATION AND SECURITY TESTS" on page 26 of this guide. Make sure the opening of each door and/or of the hatchback (one at a time) breaks the safety sequence that normally allows the system to initiate a remote start sequence.

Quick Guide for Skilled Installers

This section of the installation manual is intended for experienced installers of remote starter and mobile security products. Only the most frequently needed information are included in the following few pages. It has been laid out to quickly access connection and operational details to maximize your installation performance.

If, for any reason, additional information is required on a specific wire, refer to the "Detailed Description" section on page 9.

Note concerning vehicles equipped with an immobilization system

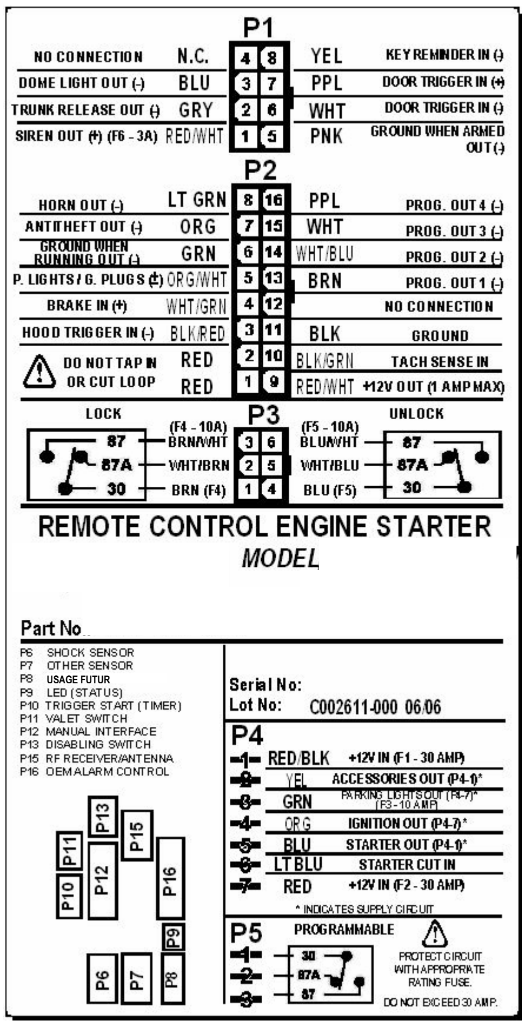
When the remote starter is installed on a vehicle equipped with a transponder type immobilization system, it is preferable to complete the installation of the **control module** and to test it **before** proceeding with the connection of the interface that neutralizes the vehicle's immobilization system (Starter Kill). See details in "Step 2: Full Start Test" on page 25

Each wire that provides a (-) output can supply only one single standard Bosch style automotive relay.

DESCRIPTION OF CONNECTORS

P1 - Alarm Inputs/Outputs (optional)
P2 - Start Inputs/Outputs
P3 - Locking/Unlocking relays
P4 - Power Inputs/Outputs
P5 - Programmable function relay
P6 - Shock sensor
P7 - Other sensor
P9 - LED (Status) - Alarm, Antitheft and Security sequence status LED
P10 - Programmable timer
P11 - Valet switch
P12 - Manual Interface
P13 - Main switch
P15 - Receiver
P16 - IM / OM Interfaces

Please note,
Yellow - accessory (YEL) and
Green – Parking Light (GRN) wire
can be program for different usage.
(See Stage 2 - Level 1 & 2
of the programming section)



DESCRIPTION OF CONNECTORS

The following charts show the purpose of each wire on each connector and list the pin position, color code and give a brief description of each.

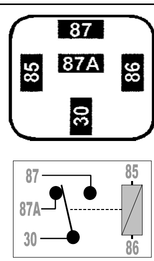
Whenever you need further explanations on a wire or need to access the virtually unlimited programming flexibility of this AstroStart product, a reference to the detailed installation instructions found later in the manual will allow you to understand all of the connection and programming options available.

The last chart lists the connectors for the plug-in accessories.

P1 CONNECTOR (Optional)			
PIN	**COLOR**	**DESCRIPTION**	**PURPOSE**
1	Red/White	Siren Output (+) 3amp max	Connect this wire to the Red wire of the Siren. See details on page 9.
2	Grey	Trunk Output (-) 150ma max	Connect this wire to the circuit that feeds the trunk release mechanism. See details on page 9.
3	Blue	Dome light Output (-) 150ma max	Connect this wire to the circuit that feeds light in passenger compartment. See details on page 9. The programming options for this wire are at Stage 1 – Level 4 on page 18 and at Stage 2 – Level 3 on page 23.
4	-	-	No connection.
5	Pink	Ground when armed Output (-) 150ma max	Connect this wire to any device that needs to be neutralized or activated in conjunction with the integrated alarm system. See details on page 9.
6	White	Door Input (-)	Connect the White wire to the Negative side and the Purple wire to the Positive side of the dome light or any light of passenger compartment. These wires are used to monitor intrusion through the doors. In Alarm Link mode, they are used to monitor the horn chirps from the OEM alarm. **Both (-) and (+) connections are required.** See details on page 9.
7	Purple	Door Input (+)	
8	Yellow	Key detection Input (-)	Connected to “key reminder” circuit on steering column, this input prevents locking of the doors during automatic rearming of the alarm if key is in the ignition. Only required if semi-passive or passive arming is selected at Stage 1 - Level 14 or when “Rearming OEM security system” is enabled in Stage 1 - Level 4. See details on page 10.

P2 CONNECTOR			
PIN	**COLOR**	**DESCRIPTION**	**PURPOSE**
1-2	Red	-	**Not use - Do not tap in or cut!**
3	Black/ Red	Hood pin input N.O. or N.C.	Connect this wire to the provided hood switch. **Default setting: Normally closed** when hood is opened. See Stage 1 – Level 3 on page 18 for programming options. See page 10 for more details on the input. ⚠ **SAFETY CIRCUIT - *must be connected!***
4	White/ Green	Brake Input (+)	Connect this wire to the brake light circuit of the vehicle. ⚠ **SAFETY CIRCUIT - *must be connected!*** See page 10 for more details on the input.
5	Orange/ White	Parking Light supervision Input (±) - Glow Plug supervision Input (±)	**If hookup for Parking light supervision**, connect this wire to the Parking Light circuit of the vehicle. That will allow the remote starter to detect the lights staying ON when the vehicle is parked. **If hookup for Glow Plug supervision,** connect this wire to the circuit that changes polarity when the Glow Plugs are warm enough to start. This allows remote start to remain in stand-by mode until Glow plug has preheated (up to 30 sec.). **Default setting: Parking Light supervision, Positive (+)** The programming options for this wire are at Stage 1 – Level 3 on page 18. See page 10 for more details on the input.

P2 CONNECTOR				
PIN	**COLOR**	**DESCRIPTION**		**PURPOSE**
6	Dark Green	Ground when running Output (-) 150ma max		Connect this wire to a circuit that requires a ground during runtime. Usually a transponder bypass interface. See page 11 for more details about this output.
7	Orange	Anti-theft Output (-) 150ma max		Connect this wire to an external starter-cut device or an extra anti-theft status LED. See page 11 for more details about this output. Programming options are at Stage 1 – Level 4 on page 18.
8	Light Green	Horn Output (-) 150ma max		Connect this wire to factory horn (-) circuit. See page 11 for more details about this output. Programming options are at Level 10 & 11 of the Stage 1, starting on page 20 and also at Stage 2 – Level 3 on page 23.
9	Red/ White	+12Volts Output (+) 1amp max		Connect this wire to the positive side (coil) of additional relays. ⚠ **Do NOT use for 2nd Ignition or 2nd Starter applications** See page 11 for more details about this output.
10	Black/ Green	Tachometer input		Connect this wire to a circuit in vehicle that provides a pulsed signal (tachometer signal/RPM) **Default setting: 1 cyl. 800RPM.** See page 11 for more details about this Input. Programming options are at Stage 1 – Level 2 on page 17.
11	Black	Ground Input		Main Ground. ⚠ MUST be connected to left **kick panel** or **firewall *only***.
12	N/C - Not used			
13	Brown	Programmable Output (-) 150ma max for each outputs	#1	Programmable **outputs** (-) used to control relays or low current circuit. Programming options are in Level 5 (#1), Level 6 (#2), Level 7 (#3) and in Level 8 (#4) of the Stage 1, starting on page 19. A wiring example is shown page 12. **Programmable outputs default setting:** Output no 1: **Pulse Before Start (Disarm)** Output no 2: **Pulse After Shutdown (Rearm)** Output no 3: **Trunk Release.** Output no 4: **Dome Light.** **Note concerning connector P16** When an AstroStart interface is connected into P16, verify if it requires the programming of either one of the programmable outputs 1 & 2. If so, consider using programmable outputs 3 & 4 instead (P2-15 & P2-16).
14	White/ Blue		#2	
15	White		#3	
16	Purple		#4	

P3 CONNECTOR			
PIN	**COLOR**	**DESCRIPTION**	**BUILT-IN RELAY DESCRIPTION**
1	Brown	LOCK Common - 30	 Contacts 85 and 86 are polarized through the module internal circuits. Each relay is controlled by the function "Locking" or "Unlocking".
2	White/Brown	LOCK N.C. - 87A	
3	Brown/White	LOCK N.O. - 87	
4	Blue	UNLOCK Common - 30	
5	White/Blue	UNLOCK N.C. - 87A	
6	Blue/White	UNLOCK N.O. - 87	

REMARKS: Connector P3 provides access to two on-board Bosch type relays to interface all types of power door lock circuits. Refer to the AstroChart CD for door lock diagrams.

P4 CONNECTOR			
PIN	**COLOR**	**DESCRPTION**	**PURPOSE**
1	Red/Black	**Power** Input	+12V power input, protected by a 30A fuse (F1) Supplies "Accessory-Yellow Wire" and the "Starter-Dark Blue Wire".
2	Yellow	**Accessory** Output (+)	Feeds vehicle accessory circuit (Heater / AC circuit). This output can be program differently in Stage 2 – Level 1, page 23. See page 12 for more details about this output.
3	Green	**Parking lights** Output (+)	Protected by a 10A fuse (F3), used to supply parking light circuit. This output can be program differently in Stage 2 – Level 3, page 23. See page 13 for more details about this output.
4	Orange	**Ignition** Output (+)	Supply ignition circuit. ⚠ **THIS CIRCUIT IS PART OF A SECURITY DEVICE; it must be connected directly to vehicle's _main_ ignition circuit.**
5	Dark Blue	**Starter** Output (+)	Connects to vehicle "Starter" circuit. When the **starter Kill option** is used, connect this wire to the starter side of the starter motor circuit.
6	Light Blue	**Starter Kill** (Starter-cut) Input	Connects to key side of the starter motor circuit. Allows starter circuit to be shut off when vehicle is remote started to prevent "grinding" the starter motor. Also provides anti-theft function. Anti-theft may be set to Active or Inactive in Stage 1 - level 4, page 18. **Anti-theft Default setting: Inactive.**
7	Red	**Power** Input	+12V power input, protected by a 30A fuse (F2) Supplies "Ignition - Orange Wire" and the "Parking Lights - Green Wire".

P5 CONNECTOR			
PIN	**DESCRIPTION**	**PURPOSE**	
1	COMMON - 30	Pin 30 of standard Bosch type relay	The **default setting** is for **Active while running** (Stage 1 - Level 9 on page 20). ⚠ An appropriate fuse must protect Power supply for this circuit.
2	N.C. - 87a	Pin 87A of standard Bosch type relay	
3	N.O. - 87	Pin 87 of standard Bosch type relay	

PLUG-IN ACCESSORIES CONNECTOR LIST		
PLUG	**DESCRIPTION**	**PURPOSE**
P6	Shock Sensor	Connector allowing a dual-stage shock sensor to be interfaced. See details on page 14.
P7	Additional Sensor	Connector allowing different types of sensors (single-stage) to be interfaced or to detect the opening of the trunk lid. See page 14 for more details about this Input.
P9	LED (status)	LED used to display the manual sequence status and alarm/antitheft status. See page 14 for more details about this connector.
P10	Dedicated timer control	Negative trigger start input allowing a timer module to be interfaced. Requires a negative pulse (0.7 sec.) to initialize remote start procedure. See page 14 for more details about this Input.
P11	Valet switch	Valet switch connector. Used for Alarm/Antitheft valet mode or for the Pager option. See page 15 for more details about this connector.
P12	Manual Interface	Interface used to monitor doors and parking brake to validate safety sequence. See page 15 for more details about this connector.
P13	Disabling switch	Switch used to turn the remote start functions off.
P15	Antenna / Receiver	Connector for the cable that plugs directly into the RF antenna / receiver module. See page 15 for more details about this connector.
P16	IM / OM / IOM Interfaces	Connector used for AstroStart alarm/immobilizer interfacing module. (IM / OM / IOM) See further details packaged with the module and also page 15 for more details about this connector.

Default Setting

You may believe that a product as versatile as this one would be a programming nightmare. In most cases, you will not need to change a setting from the factory default programming

Consult the following charts to determine if the defaults work for the installation. If no changes are required, move to the testing phase of the installation on page 25. If, for any reason, changes to the default programming are required, please become familiar with the programming charts, beginning on page 17.

TOPIC	DEFAULT FEATURES FOR STAGE 1	LEVEL
Transmitters	• No modification required unless additional remotes need to be learned. They are all factory programmed in User 1.	Level 1 Page 17
Tach/Engine	• 1 cylinder - 800 RPM idle speed	Level 2 Page 17
Engine configuration	• Circuit “P2-5” used for Parking light detection • Parking Light or Glow Plugs circuit polarity is Positive (+) • Ignition cuts off between crank cycles • Hood switch closed contact when hood is open	Level 3 Page 18
Anti-theft compatibility	• No accessory delay after start-up • Rearming disabled • Anti-theft disabled	Level 4 Page 18
Programmable output 1	• Pulse before Start and with Unlock	Level 5 Page 19
Programmable output 2	• Pulse after runtime and with Lock	Level 6 Page 19
Programmable output 3	• Trunk opening	Level 7 Page 19
Programmable output 4	• Dome light supervision	Level 8 Page 19
Programmable Relay	• Active while running	Level 9 Page 20
Door lock options	• 0.7 sec. pulse before ignition • 0.7 sec. lock/unlock pulse • Auto lock disabled • Unlocking pulse = Single • 2nd locking confirmation disabled	Level 10 Page 20
Utility outputs	• Utility output #1 and #2 = 0.7 second pulse • Utility output #3 and #4 = 0.7 second pulse (no configuration) • 30 seconds Panic/Alarm duration	Level 11 Page 21
Start cycle options	• Over-revving supervision = Enabled • Pulse before start on all Unlock outputs = Disabled • Pulse after start on all Lock outputs = Disabled • Runtime = 8 min. (Gas) / 16 min. (Diesel)	Level 12 Page 21
Sentinel Mode	• Sentinel mode temperature = -15º C (5º F) • Sentinel mode runtime = 8 min. (Gasoline) / 16 min. (Diesel) • Pulse before on Trunk command = Disabled	Level 13 Page 21
Alarm	• AstroStart Alarm = Disabled • Chirp = Enabled • Additional sensor = Other sensor	Level 14 Page 22
Remote options	• Trunk command use for Trunk opening	Level 15 Page 22
Vehicle configuration	• Manual Transmission car type • Sequence initialized by 2 parking brake activations	Level 16 Page 22

TOPIC	DEFAULT FEATURES FOR STAGE 2	LEVEL
Accessory output Relay	• Accessory	Level 1 Page 23
Parking Light output Relay	• Parking Light	Level 2 Page 23
Miscellaneous Configurations	• Start confirmation on demand: Enable • 2nd Lock confirmation on Horn output • Turbo Mode: Disable • Dome light activation when engine stops (with key): Disable	Level 3 Page 23
Miscellaneous Configurations (2nd Part)	• P9 LED output indicates the status of: Alarm, Antitheft and Manual Sequence	Level 4 Page 23

IMPORTANT NOTE TO BE READ AT THE INSTALLATION

- The remote starter control module is **FACTORY PROGRAMMED FOR MANUAL TRANSMISSION VEHICLE**. Be sure to program it for the right type of vehicle you're working on.
- The **ALARM** portion is factory programmed Disable. It needs to be set to Enable for it to work properly.
- When the Alarm part of the control module is enabled, the White and Purple wires (P1-6 and P1-7), used to monitor the doors, **NEED TO BE BOTH CONNECTED**, no matter which polarity the dome light circuit is powered up. This type of connection is compatible with all switching types and will support anti-battery-depletion functions found in newer vehicles.
- If the « Alarm Link » option is used, the White and the Purple are now used to detect the OEM alarm horn. Remember**; both the Purple and the White wires (P1-6 and P1-7) need to be hooked up** to detect the horn properly.

CONTROL MODULE PROGRAMMING

Two different methods can be used to program our remote starters:

- **The Multitest II tool:**

  The Multitest II (part no. 310-059-501) is an indispensable tool that was designed to help improve installers' time and efficiency when it comes to programming the control unit options or diagnose a hard to find intermittent remote starter or alarm problem.
  This tool communicates through the receiver (antenna) cable, so no access to the unit under the dashboard is required. Visit our web site at www.astroflex.com for more details.

- **By the « DIP » switches:**

  With its sophisticated processor, and its multiple programming levels, AstroStart control module allows direct entry into a multitude of programming options with little effort. You only need to find the Level where the option is and program that level. If you don't own a Multitest II tool and some modifications in the default programming need to be done, go to the « Programming Tables » on page 17 of this guide.

Detailed Description

P1: ALARM (OPTIONNAL)

P1-1: Red/White: SIREN OUTPUT (+)

This output (+12 VDC) is fuse protected (3A fuse) and feeds the siren directly. The load applied to this output **must not** exceed 3 Amps.



- Install the siren under the hood in a location that is inaccessible when the hood is closed.
- Run Red/White wire to the engine compartment through an appropriate grommet, and connect to the positive (+) terminal of the siren (RED wire).
- Connect negative terminal (-) (BLACK wire) of siren to vehicle ground.

P1-2: Grey: TRUNK OUTPUT (-)



Low current negative output dedicated to trunk release.

- Add a relay (not included) if polarity of trunk release circuit is positive or if circuit requires more than 150 milliamps.

P1-3: Blue: DOME LIGHT OUTPUT (-)

Low current negative output dedicated to dome light, mainly when engine is shut-off by key (Programmable in Stage 2 – Level 3) or when unlocking doors on vehicle.



- Add a relay (not included) if polarity of the dome light circuit is different than negative (-) or if the circuit requires more than 150 milliamps.
- This wire is normally connected to the driver's door pin.

P1-5: Pink: ARMED OUTPUT (-)

This output provides a ground when the AstroStart alarm system is armed. It can be used to activate an auxiliary circuit or LED. The device powered by this output **must not draw** more than 150 milliamps.

P1-6: White: DOORS / HORN (-) & P1-7: Purple: DOORS / HORN (+)

These wires can be use in two different ways depending on the mode with which they are used. The first one is called "Alarm Link" (Programmable in Stage 1 – Level 14) that page your remote if the OEM alarm's been triggered, by monitoring the horn wire. In the AstroStart Alarm mode, these wires are used to detect door opening in order to trigger the alarm.

Wired in "Alarm Link" mode:

- Determine which polarity is the horn wire triggered by the OEM alarm and hook up the appropriate wire corresponding to its polarity. (White for (-) and Purple for (+))
- Connect the other wire, purple or white, to its corresponding polarity. In other words, if the horn is (+) pulse, take the White to Ground. If the horn is (-) pulse, take the Purple to 12volts.

Note: The control module needs to see 4 pulses on the horn wire in 8 seconds to send an alarm condition to the programmed remotes. The horn also needs to be triggered by the vehicle and not by the control module and without the Ignition to be considered as a violation.

Wired in AstroStart Alarm mode:

- Determine which polarity is required for the door detection and hook up the appropriate wire corresponding to its polarity. (White for (-) and Purple for (+))
- Take the other wire, purple or white, to its corresponding polarity. In other words, if the door detection wire is (+), take the White to Ground. If the door detection wire is (-), take the Purple to 12volts.

The control module requires a **Ground on the White AND 12volts on the Purple** to consider a door open, to trigger the alarm, and page all remotes the alarm condition. An alarm triggered information is automatically sent to all of the 2 way remotes learned.



White and Purple wires (P1-6 and P1-7) **MUST BOTH BE CONNECTED** whatever the polarity of the circuit that controls the dome light. This type of connection is compatible with all switching types and will support anti-battery-depletion functions found in newer vehicles.

P1-8: Yellow: ANTI-LOCKING

This input is used to detect the presence of the key in the ignition switch in order to cancel locking of the doors during an automatic rearming. In such cases, the alarm arms, but the doors are not locked. The same thing occurs with an OEM alarm rearming, this wire will prevent locking.

Connect the YELLOW wire to the circuit (inside ignition switch harness - under steering column) that changes status as soon as the key is inserted in the ignition switch ("Key reminder switch" - negative circuit only). For positive circuit, use a relay to convert the signal to negative.

P2: INPUT/OUTPUT

P2-1 & 2: Red

THESE PINS ARE NOT FOR INSTALLATION USE. DO NOT CONNECT TO ANYTHING OR CUT FOR ANY REASON!

P2-3: Black/Red: HOOD INPUT

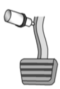


Programmable N.O. or N.C. (Stage 1 – Level 3 on page 18) input allowing the module to detect the hood being opened, preventing any remote start sequence to be engaged.

Run Black/Red wire into engine compartment through a rubber grommet. Cover wire with plastic loom and secure with plastic ties, away from any heat source or sharp metal edges.
Install switch at the front of the engine compartment to ensure it activates the engine shut down feature when hood is lifted up about 1.5 cm (1/2"). Use a 8mm (5/16") drill bit.

This circuit is a safety feature that **must be connected**.

P2-4: White/Green: POSITIVE BRAKE SWITCH INPUT



Positive input used for programming and to neutralize a remote start sequence.

Connect White/Green wire to brake lights circuit at brake pedal switch (wire that provides +12 VDC only when brakes are applied). Do not connect White/Green wire to cruise control cancel switch.

This circuit is a safety feature that **must be connected**.

P2-5: Orange/White: PARKING LIGHT / GLOW PLUG DETECTION INPUT (±)

Parking Light detection (Gas engine only):

This circuit can detect the parking Light left ON when the vehicle is parked and page the owner's remote (2 way remote only).

- Locate the Parking light circuit of the car and hook it to that wire.
- Program the polarity of the circuit at Stage 1 – Level 3 on page 18

Glow Plug detection:

This circuit is used to delay starting of the vehicle until the preheating of the diesel engine has taken place.

Find the glow plug light circuit in the dashboard and connect this wire to that circuit. You will notice that some glow plug light circuits in new diesel car/truck are now working in Data. In these cases, it is preferable to use the glow plug wire on the engine or to program the unit to have a fix wait to start time. To do so, simply leave this wire unconnected, program the Polarity to be “Negative” (Stage 1 – Level 3, page 18) and select the desired wait time (15 seconds or 30 seconds) in that same Level.

This connection is optional, but is highly recommended for optimum starting.

The polarity of the glow plug circuit is determined by testing the circuit while the glow plug light is lit.

P2-6: Dark Green: NEGATIVE OUT WHEN RUNNING

This (-) output is powered up 1 second before ignition, remains on during run time and remains on 1 second after ignition is shut off. It can be used to temporarily disable a factory security system or an anti-theft device during runtime.

P2-7: Orange: ANTI-THEFT OUTPUT

Output (-) used to control a relay that neutralizes a vehicle circuit to prevent starting, or a flashing LED to indicate anti-theft status.

See Stage 1 - Level 4 of the programming chart for the available options and the user guide for the explanation of those options.

P2-8: Light Green: HORN OUTPUT

Output (-) used to activate the factory horn circuit (low current) or an external relay for high current or for positive circuit.

This output can be connected to the vehicle's factory horn to give an added audible verification or confirmation and is also triggered by the AstroStart alarm when in violation. See programming options related to the this output at Stage 1 – Level 10 on page 20 and Stage 2 – Level 3 on page 23.

P2-9: Red/White: +12V OUTPUT

Output used to feed external accessories relays. This output is protected by a 1A auto-reset fuse (PTC).
Note: Do Not Use for 2ND IGNITION or 2ND STARTER applications.

P2-10: Black/Green: TACHOMETER INPUT

Input used to detect whether or not engine is running.

GAS-POWERED VEHICLES:

Connect Black/Green wire to the signal (RPM) wire of the Ignition circuit. This wire can normally be found at the negative terminal of ignition coil, on ignition module or at the back of the instrument cluster.

Note: For additional protection, it is recommended that a 0.5A fuse be added at the junction to ignition coil.

DIESEL-POWERED VEHICLES:

Most of the newer diesel engines now have a signal wire that can be read as a tachometer (Rpm) wire. If the vehicle you're working on does not, you may have to add a DTS-2 module (part no. 310-066-502). This module converts electromagnetic fields generated by the alternator into a tachometer signal. Wiring instructions are supplied with kit.

AstroStart has collected useful information on vehicle circuitry (wire colors) on a CD-ROM called AstroChart. See your distributor for more details.

HYBRID-POWERED VEHICLES

Most vehicles with hybrid engine cannot provide regular tachometer signal due to the simple fact that the tachometer signal source (the gas engine) only engages when the battery needs to be charged. If an installation is required on that kind of vehicle, **ground the "Tachometer Input - Black/Green" and program the Level 2 as "Hybrid Engine" mode.** That programming will give you a 5 seconds start output allowing the remote starter to be installed without monitoring the tachometer signal.

P2-11: Black: GROUND INPUT

Input that provides a reference ground for the module.

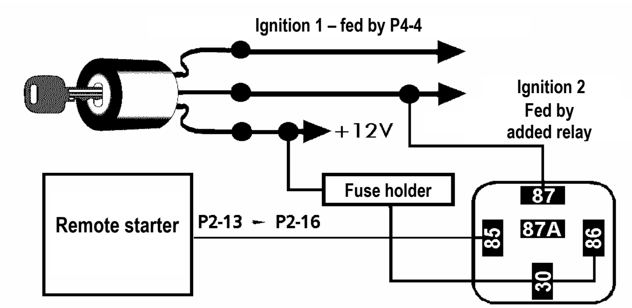
You must always be sure to have a good ground point. This connection is the one that creates the majority of problems. A bad ground connection is difficult to diagnose because, most of the time, the problem will be intermittent.

ALWAYS ENSURE BLACK WIRE IS CONNECTED TO THE LEFT KICK PANEL OR THE FIREWALL.

P2-13 to P2-16: PROGRAMMABLE OUTPUT #1 to #4

Negative outputs (-) where the function can be determined in Stage 1 - Level 5 to 8, Page 19.
P2-13: Brown: Programmable output #1, factory setting is PULSE BEFORE.
P2-14: White/Blue: Programmable output #2, factory setting is PULSE AFTER.
P2-15: White: Programmable output #3, factory setting is TRUNK RELEASE.
P2-16: Purple: Programmable output #4, factory setting is DOME LIGHT.

Wiring example for applications using programmable (-) outputs.



Warning, these outputs can provide a maximum of 150mA

P3: POWER DOOR LOCKS

This harness provides on-board relays to allow interfacing with all types of power door lock circuits, without adding any other device. Refer to the AstroChart CD-ROM for descriptions of door lock connections.

Programming for options related to this connector is done in Stage 1 - Level 10 on page 20 and in Stage 1 - Level 12 on page 21.

P4: MAIN HARNESS

P4-1: Red/Black: POWER INPUT

30A input that provides power to the yellow “Accessory” wire and the dark blue “Start” wire.

This wire should be connected to a circuit in the main ignition switch harness **that can provide 30 amps**.
When there is more than one feed circuit, use the circuit that supplies most power.

Under no circumstances rating of the fuse on this circuit should be modified.

P4-2: Yellow: ACCESSORY OUTPUT

Provides power to energize the vehicle's climate control circuit.
Climate control circuit will sometimes have 2 or more wires requiring power in order to turn on the air conditioning compressor and heater fan motor. If more than one circuit is required, additional relays must be added through programmable outputs P2-13 to P2-16 to ensure vehicle’s circuits maintain their isolation. The P5 built-in relay can also be used to interface with this wire.



Note: If no Accessory wires need to be power up on your installation, this built in relay (Accessory output) can be use in different ways. See Stage 2 – Level 1 on page 23 for the programming options.

Warning. This output cannot supply more than 30A, combined with the Start output.

That means:

- If this output is configured to energize a circuit while the Start output is energized, be sure that both, the “Start” output and the “Accessory” output, combined, won’t draw more than 30A. If that’s the case, you better use an external relay or the built in P5 relay for your application.

P4-3: Green: PARKING LIGHT OUTPUT

This wire provides a positive output to trigger the vehicle's parking light circuit to add a visual confirmation when the module receives commands.

Locate the parking light circuit. If the circuit is controlled by a ground (-) signal, it is possible to use one of the four programmable outputs set in "Parking lights" mode. That will leave this positive output free so it can be configure in Stage 2 – Level 2 page 23 for different functions.

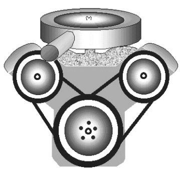
Be sure the circuit you found is a Parking light circuit and not a dash light circuit, as a dash light circuit will have a voltage that varies depending on the position of the dash dimmer control. Use a DMM (digital multi-meter) instead of a test light to test this circuit.

Warning. This output cannot supply more than 30A, combined with the Ignition output.

This means:

If this output is configured to energize a circuit while the Ignition output is energized, be sure that both, the “Ignition” output and the “Parking Light” output, combined, won’t draw more than 30A. If this is the case, you better use an external relay or the built in P5 relay for your application.
This output cannot be program as “Accessory”.

P4-4: Orange: IGNITION OUTPUT

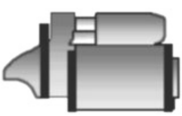


Provides power to the vehicle's ignition circuit (which is required to make the engine run).

THIS CIRCUIT IS PART OF A SECURITY DEVICE. It must be connected directly to the vehicle’s *main* ignition circuit.

Some newer vehicles can have multiple ignition wires in the main ignition switch harness. Therefore, additional relays will have to be added (through programmable outputs P2-13 to P2-16 to ensure vehicle’s circuits maintain its isolation. The P5 built-in relay can also be use to interface with these wires.

P4-5: Dark Blue: STARTER OUTPUT



+12V output used to supply power to the starter motor in the vehicle. This is another circuit that can potentially hold multiple wires. Additional relays must be added to ensure vehicle’s circuits maintain its isolation. (See Programmable outputs P2-13 to P2-16.) The P5 built-in relay can also be used to interface with these wires. This wire must be hooked to the starter motor side of the start circuit if using the starter cut relay option.

P4-6: Light Blue: STARTER CUT INPUT

Only required if the “over-cranking” or the “Antitheft” option is installed.

Input wired to an internal relay, which allows the module to cut off the starter circuit when the vehicle is running on remote start preventing over-cranking of the Start. When the Antitheft option is enabled in Stage 1 – Level 4 of the programming, the cut-off will be engaged when the Ignition key is ON and the antitheft active. This wire goes to the key Cylinder side of the Start circuit that you cut.

P4-7: Red: POWER INPUT

Power input wire that is protected by a 30A in-line fuse that provides power for the “Ignition-Orange wire” and the “Park Lights-Green wire” outputs.

This wire should be connected to a circuit in the main ignition switch harness **that can provide 30 amps**.
When there is more than one feed circuit, use the circuit that supplies most power.

Under no circumstances rating of the fuse on this circuit should be modified.

P5: PROGRAMMABLE RELAY

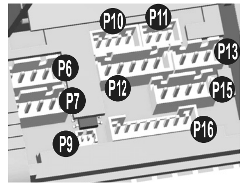
This is a three-pin connector connected to an internal standard automotive style relay, i.e. COMMON-30, N.O. (normally open)-87 and N.C. (normally closed)-87A.This connector is there to save an external relay in your installation. The installation of this relay requires a maximum of 3 wires. Refer to Stage 1 - Level 9 on page 20 for more details about the options available on this output.

Cut to White wire supplied in the box for the wiring of this output.

NOTE: Always use adequate fuse rating.

P6 - P16: CONNECTORS FOR PLUG-IN ACCESSORIES

Position and description of the connectors under the access door.

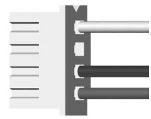


P6: SHOCK SENSOR (supplied with alarm kit, part no. ALA-OP)

Install Shock Sensor in a place where it will provide omni directional sensitivity.

P7: OTHER SENSOR (supplied with alarm kit, part no. ALA-OP)

This connector is used to connect other types of sensors, such as a motion sensor, window breakage sensor or any other type of sensor that provides a negative pulse of at least 0.7 second.



WHITE – TRIGGER INPUT
BLACK – GROUND
RED - +12VDC

This input can also be programmed in Trunk supervision. This way, the trunk supervision will be temporarily canceled (5 minutes) while the trunk is opened by a remote command;
See Stage 1 - Level 14 of programming on page 22.

P9: LED (STATUS)

This connector is used to connect an external LED that indicates the users various statuses (alarm system, antitheft and safety sequence). If the LED is installed in a location visible from outside the vehicle, it will also act as a deterrent.

When the programming option is set as “P9 LED output indicates the status of the Alarm, Anti-theft and the Manual Sequence” in Stage 2 – Level 4, the LED will show the AstroStart alarm status or the antitheft status, depending which one is enabled. If installed in a manual transmission car, it will also temporarily indicate in priority, the status of the safety sequence.

P10: TRIGGER INPUT

This is a four-pin connector that allows an AstroStart RST-2 timer part no. 310-903-502-02 or a similar Negative pulse device to trigger the start-up procedure of the remote start. A negative 0.7 second pulse is required on this input.



(-) TRIGGER INPUT P10-4

To connect negative pulse devices other than a RST-2 timer unit to this input, use the part no. 310-903-271-01harness.

P11: VALET SWITCH

Connector allowing a push-button switch to be plugged into the module to control the “Valet” mode for both the AstroStart alarm and the antitheft application. It is also a part of the Paging system.

- “Valet” mode: Press the push-button for more than 3 seconds with **the key ON and the engine NOT running.**
- “Paging” mode: Press the push-button for more than 3 seconds in any condition other than the one for the “valet” mode, will transmit a call (page) to all the remotes learned in it’s memory (2 way remote only).

This switch should be mounted in a location accessible to the operator, out of plain view.

Use a 7mm (9/32") drill bit.

P12: MANUAL INTERFACE



Five-pin connector used to connect the manual interface.

The manual interface monitors the status of the doors and parking brake for initialization of the system activation sequence.

The purpose of this sequence is to increase safety by forcing the user to ensure that the gearshift lever is not in gear when leaving the vehicle and planning to remote start it later.

P13: MAIN SWITCH

Three-pin connector designed for a plug-in on/off switch. This switch overrides the remote start functions, while maintaining all other functions.

The switch should be mounted in a location easily accessible by the operator, such as under the dashboard, where the driver can reach it easily. The round shape of the switch allows you to install it on the dashboard, using a 1/2" drill bit.

P15: RECEIVER CONNECTOR

A four-pin connector for direct connection to the supplied receiver.

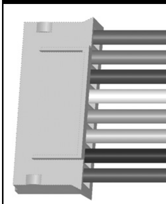
Mount the receiver module below the tinted strip on the windshield, or if windshield has no tinted strip, about 10 cm (3-1/2") from the roofline, with the connector facing up.

NOTE: If the windshield is of the heated variety, an alternative location must be selected, as a windshield of this type will impede reception of the remote control signal.

P16: IM – OM – IOM ACCESSORIES CONNECTOR

This is an eight-pin connector designed to plug directly into an AstroStart alarm/anti-theft interfacing module.

All dedicated devices interfacing the remote start module to an OEM or immobilization alarm will be equipped with a connector allowing connection to this P16 location.

DESCRIPTION OF HARNESS	
	**BROWN: OUTPUT (-) LOCKING** **BLUE: OUTPUT (-) UNLOCKING** **BROWN/WHITE: PROGRAMMABLE OUTPUT 1 (-)** **WHITE/BLUE: PROGRAMMABLE OUTPUT 2 (-)** **ORANGE: OUTPUT ANTI-THEFT (-)** **GREEN: OUTPUT (-) WHEN RUNNING** **BLACK: GROUND** **RED: +12VDC**

⚠ **Note: The Green (P2-6), Orange (P2-7), White/Blue (P2-14) and the Brown (P2-13) are linked to the P16 connector by the internal board. If these wires are used on both connectors, isolate them with diodes.**

Detailed programming of the control module

Programming procedure

Programming is accomplished using 9 Dipswitches incorporated into the module or a programming console that communicates with the control module through the receiver connector. This console is called Multitest II and can also be used as a diagnostic tool. I.e.: alarm code, start fail codes.

Programming is very simple once you have programmed your first module. In most cases, you will need to program only the tachometer and cylinder settings, and occasionally an additional remote transmitter.

Programming parameters are divided into 2 different Stages.
Stage 1 is separated into 16 groups called "levels" while Stage 2 is separated into 4 Levels.

STAGES PROGRAMMING

The fist step is to identify which Levels in which Stages need to be modified. Default, you are in Stage 1. So you only need to modify the Levels that require it, according to the procedure described later. But if changes are required in Levels under Stage 2, you need to access these by the following procedure:

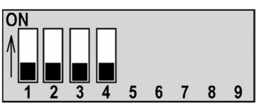
1. Put Dip switch number 5 (and 5 only) to the ON position
2. Press on the brakes. The LED of the control module will light up, indicating that you're in Stage 2 and will stay lit as long as you're in that Stage.

You will remain in Stage 2 as long as any of the Dipswitches 1 to 4 are on. To exit Stage 2, turn all Dipswitches to off, especially Dip 1 to 4, and press on the brakes.

LEVELS PROGRAMMING

Programming Levels need to be read in 2 separate parts. The first one, Dip switches 1 to 4 are used to select programming levels while Dip switches 5 to 9 are used to select options in each level.

SELECTING LEVEL



SETTING OPTIONS



Programming is done as follows:

1) Set Dipswitches 1, 2, 3 and 4 to select the LEVEL of the desired feature.
2) Set Dipswitches 5 to 9 to combine OPTIONS you wish to select.

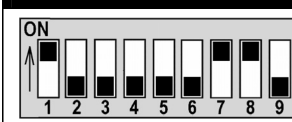
NOTE: IF YOU HAVE TO MAKE ANY PROGRAMMING CHANGES IN ONE LEVEL, THE ENTIRE LEVEL MUST BE PROGRAMMED.

3) Press on the brakes to lock in the selected parameters in memory. LED will flash the same number of times as the programming level selected, confirming that parameters have been memorized in that LEVEL. In Stage 2, the LED also confirms by flashing but in reverse. (1 flash: ON-OFF-ON)
4) Repeat steps 1 to 3 for each LEVEL that requires programming changes.
5) When programming is complete, put all Dipswitches back to OFF position, then press on the brakes.

Example: Imagine you have to program the AstroStart for an eight-cylinder engine, with an idle speed of 600 RPM.

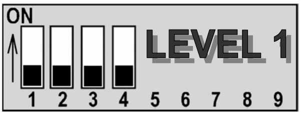
1) Place DIP switches to select the Level: Dipswitch 1 (On), 2, 3 and 4 (Off) to select level 2.
2) Place DIP switches to select Options: DIP switches 5, 6 (Off) and 7 (On) to set for 8 cylinders and DIP switch 8 (On) and 9 (Off) to set the idle speed of 600 RPM.
3) Press on the brakes; the LED flashes twice to confirm LEVEL 2 settings have been memorized.
4) Proceed with next level, or, if all programming is done, put all Dipswitches back to OFF and press on the brakes.

SETTING EXAMPLE



Programming Tables

In the following tables, the shaded option is the default setting.



DEFAULT SETTING:

Normal operation

TRANSMITTER CODE LEARNING					
STAGE 1 - LEVEL 1	**5**	**6**	**7**	**8**	**9**
Initiate STAGE 2 of programming	↑	⇩	⇩	⇩	⇩
Initial Programming Reset	⇩	⇩	↑	⇩	⇩
Transmitter Learning	⇩	⇩	⇩	↑	⇩
Normal Operation	⇩	⇩	⇩	⇩	⇩

AUTOMATIC TACH LEARNING

CANNOT BE PROGRAMMED UNTIL INSTALLATION IS COMPLETE

Note: Vehicle engine has to be warmed up before doing any programming.

Place DIP switches as illustrated,
start the vehicle using the key, and then press on the brakes.



The tach learning function takes a little over 4 seconds.
After this delay, the unit will come out of tach learning mode.

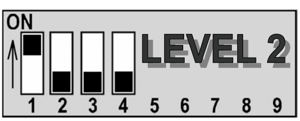
When tach signal is detected, LED will flash the same number of times as the number of cylinders selected.

If tach learn mode fails, the control module programs actual settings for DIP switches 8 & 9 (idle speed) and the cylinder setting will remain the same as it was before programming started (see LEVEL 2 programming).

An installer can therefore change the parameters of Dipswitches 8 & 9 without worrying about the number of cylinders previously programmed.

The technician would simply have to put Dipswitches 1, 5, 6 & 7 to automatic tach learning mode, without starting the vehicle.

This way, tach learning mode will fail, which will maintain the original cylinder setting but allow you to program the new idle speed.

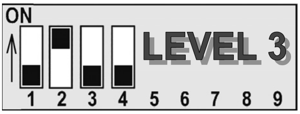




Default settings:
1 cylinder; 800 RPM

IN MOST CASES, IT IS RECOMMENDED TO USE THE AUTOMATIC TACH LEARNING OPTION AS LONG AS ENGINE HAS BEEN PREVIOUSLY WARMED UP.

TACH AND CYLINDERS					
STAGE 1 - LEVEL 2	**5**	**6**	**7**	**8**	**9**
1 Cylinder	⇩	⇩	⇩		
2 Cylinders	↑	⇩	⇩		
3-4 Cylinders	⇩	↑	⇩		
5-6 Cylinders	↑	↑	⇩		
8 Cylinders	⇩	⇩	↑		
10 Cylinders	↑	⇩	↑		
12 Cylinders	⇩	↑	↑		
Automatic Tach Learning	↑	↑	↑		
Hybrid Engine (See P2-10 p.11)				↑	↑
800 RPM				⇩	⇩
600 RPM				↑	⇩
500 RPM				⇩	↑



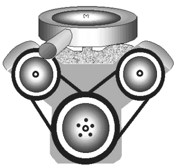
Default settings:
Circuit P2-5 (Orange/White) is use to monitor: the Parking Light

Glow plug delay: 15 seconds

Parking Light or Glow Plugs circuit polarity[2]: Positive

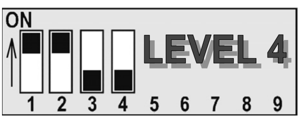
Ignition: Turned Off between crank attempts

Hood pin switch: N.C.



ENGINE CONFIGURATION						
STAGE 1 - LEVEL 3		**5**	**6**	**7**	**8**	**9**
Circuit P2-5 (Orange/White) used to monitor	Parking Light	⇩				
	Glow Plug *1	⬆				
Glow Plug delay	15 sec.		⇩			
	30 sec.		⬆			
Parking Light or Glow Plugs circuit polarity *2	Positive			⇩		
	Negative			⬆		
Ignition circuit status between crank attempts	Turned Off				⇩	
	Remains On				⬆	
Hood Pin switch type *3	Normally Closed					⇩
	Normally Open					⬆

1 - When the unit is set to monitor the Glow plug circuit, the runtime is twice the setting done.
2 - Positive & Negative settings glow plug are based on the circuit being activated. (Parking Light or Glow Plug light “ON”)
3 - Hood Pin switch type: Normally open & normally closed settings are based on the hood being “Open”.



Default settings:
Rearming = Disabled

Rearming type = Type 1

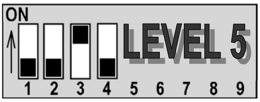
Accessory = No delay

Antitheft = Disabled

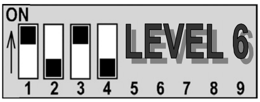
Antitheft type = Passive

Note: Type 1 is use to duplicate the oem alarm rearming that requires a Lock command while the driver’s door is open. (i.e. GM) Type 2 is suited to shut down RAP by opening and closing the driver’s door prior to Lock.

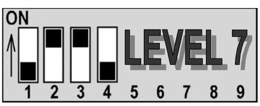
ANTITHEFT SYSTEM						
STAGE 1 - LEVEL 4		**5**	**6**	**7**	**8**	**9**
OEM security system rearming	Disabled	⇩				
	Enabled	⬆				
Rearming type	Type 1		⇩			
	Type 2		⬆			
Accessory Start-up Delay	No delay			⇩		
	3 sec. delay			⬆		
Antitheft System	Disabled					⇩
	Enabled					⬆
	Passive				⇩	
	Active				⬆	



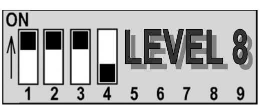
Output 1:
P2 Connector, Pin 13
Brown wire
Default setting:
Pulse before start



Output 2:
P2 Connector, Pin 14
White/Blue wire
Default setting:
Pulse after shut-down

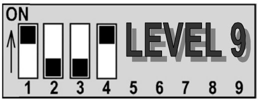


Output 3:
P2 Connector, Pin 15
White wire
Default setting: Trunk release

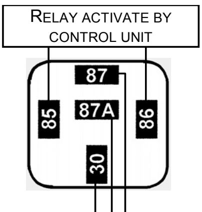


Output 4:
P2 Connector, Pin 16
Purple wire
Default setting: Dome light

PROGRAMMABLE OUTPUTS 1, 2, 3 & 4						
STAGE 1 - LEVEL 5, 6, 7 & 8	**DEFAULT LEVEL**	**5**	**6**	**7**	**8**	**9**
Pulse Before Start (Default Output #1)	5	⇩	⇩	⇩	⇩	⇩
Pulse After Shutdown (Default Output #2)	6	⇩	↑	⇩	⇩	⇩
Ground While Running		⇩	⇩	↑	⇩	⇩
Park Lights		⇩	↑	↑	⇩	⇩
Pulse After Startup		⇩	⇩	⇩	↑	⇩
Pulse on 2nd Unlock		⇩	↑	⇩	↑	⇩
Ignition		⇩	⇩	↑	↑	⇩
Accessory		⇩	↑	↑	↑	⇩
Starter		⇩	⇩	⇩	⇩	↑
Trunk Release (Default Output #3)	7	⇩	↑	⇩	⇩	↑
Pulse after Ignition Off (1 min. duration)		⇩	⇩	↑	⇩	↑
Dome Light (Default Output #4)	8	⇩	↑	↑	⇩	↑
Ground when locked		⇩	⇩	⇩	↑	↑
Utility 1		⇩	↑	⇩	↑	↑
Utility 2		⇩	⇩	↑	↑	↑
Utility 3 (1 second fixed time)		↑	⇩	⇩	⇩	⇩
Utility 4 (1 second fixed time)		↑	↑	⇩	⇩	⇩
Ground when Safety sequence is Valid		⇩	↑	↑	↑	↑
Ground when the security system (AstroStart or OEM) is triggered or when the Panic mode is engaged		↑	⇩	↑	⇩	⇩
Ground when Unlocked by User 2		↑	↑	↑	⇩	⇩
External LED (Same functions as P9)		↑	⇩	⇩	↑	⇩
Deactivated		↑	↑	⇩	↑	⇩

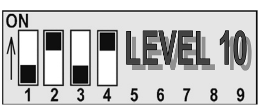


P5 Connector
Default setting: Ignition



WIRING DETAILS	
P5 PIN #	RELAY CONTACT
1	30
2	87A
3	87

PROGRAMMABLE RELAY					
STAGE 1 - LEVEL 9	**5**	**6**	**7**	**8**	**9**
Pulse Before Start	⇩	⇩	⇩	⇩	⇩
Pulse After Shutdown	⇩	⬆	⇩	⇩	⇩
Active While Running	⇩	⇩	⬆	⇩	⇩
Parking Lights	⇩	⬆	⬆	⇩	⇩
Pulse After Startup	⇩	⇩	⇩	⬆	⇩
Pulse on 2nd Unlock	⇩	⬆	⇩	⬆	⇩
Ignition	⇩	⇩	⬆	⬆	⇩
Accessory	⇩	⬆	⬆	⬆	⇩
Starter	⇩	⇩	⇩	⇩	⬆
Trunk Release	⇩	⬆	⇩	⇩	⬆
Pulse after Ignition Off (1 min. duration)	⇩	⇩	⬆	⇩	⬆
Dome Light	⇩	⬆	⬆	⇩	⬆
Horn	⇩	⇩	⇩	⬆	⬆
Utility 1	⇩	⬆	⇩	⬆	⬆
Utility 2	⇩	⇩	⬆	⬆	⬆
Utility 3 (1 second fixed time)	⬆	⇩	⇩	⇩	⇩
Utility 4 (1 second fixed time)	⬆	⬆	⇩	⇩	⇩
Active when the security system (AstroStart or OEM) is triggered or when the Panic mode is engaged	⬆	⇩	⬆	⇩	⇩
Active when Unlocked by User 2 (See detail on p.27)	⬆	⬆	⬆	⇩	⇩
Deactivated	⇩	⬆	⬆	⬆	⬆



Default settings:

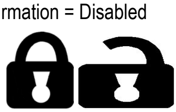
Pulse before ignition = 0.7 sec.

Unlock = 0.7 sec.

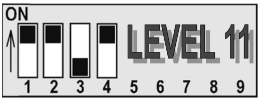
Auto lock = Disabled

Unlock Pulse = Single

Second Lock
Confirmation = Disabled



LOCK/UNLOCK OPTIONS						
STAGE 1 - LEVEL 10		**5**	**6**	**7**	**8**	**9**
Pulse before Ignition duration	0.7 sec.	⇩				
	0.35 sec.	⬆				
Door Lock/Unlock Pulse	0.7 sec.		⇩			
	2.8 sec.		⬆			
Auto lock	Disabled			⇩		
	Enabled			⬆		
Unlock Pulse	Single				⇩	
	Double				⬆	
Second Lock Confirmation	Disabled					⇩
	Enabled					⬆



Default settings:

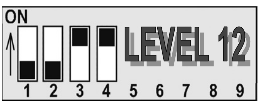
Utility 1 = 0.7 sec.

Utility 2 = 0.7 sec.

Panic duration = 30 sec.

UTIL.

DURATIONS: UTILITY 1 & 2 & PANIC						
STAGE 1 - LEVEL 11		**5**	**6**	**7**	**8**	**9**
Utility Duration 1	0.7 sec.	⇩	⇩			
	15 sec.	↑	↑			
	1 minute	↑	⇩			
	8 minutes	⇩	↑			
Utility Duration 2	0.7 sec.			⇩	⇩	
	15 sec.			↑	↑	
	1 minute			↑	⇩	
	8 minutes			⇩	↑	
Panic Duration	30 sec.					⇩
	60 sec.					↑



Default settings:

RPM > 3000 = Enabled

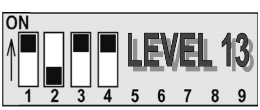
Pulse **before** start on all **Unlock** outputs = Disabled

Pulse **after** Start on all **Lock** outputs = Disabled

Engine runtime
8 min. (Gas)
16 min. (Diesel).



ENGINE RUNTIME						
STAGE 1 - LEVEL 12		**5**	**6**	**7**	**8**	**9**
RPM > 3000	Enabled	⇩				
	Disabled	↑				
Pulse **before** start on all **Unlock** outputs	Disabled		⇩			
	Enabled		↑			
Pulse **after** start on all **Lock** outputs	Disabled			⇩		
	Enabled			↑		
Engine runtime (Gas / Diesel)	2 / 4 minutes				⇩	↑
	4 / 8 minutes				↑	↑
	8 / 16 minutes				⇩	⇩
	18 / 36 minutes				↑	⇩

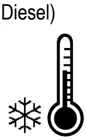


Default settings:

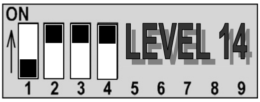
Pulse before on
Trunk command = Enabled

Temperature = -15° C (5° F)

Run time
= 8 min. (Gas),
= 16 min. (Diesel)



SENTINEL MODE						
STAGE 1 - LEVEL 13		**5**	**6**	**7**	**8**	**9**
Pulse before on Trunk command	Disabled			⇩		
	Enabled			↑		
Sentinel mode Activation Temperature	-5° C (23° F)	↑	↑			
	-15° C (5° F)	⇩	⇩			
	-20° C (-7° F)	↑	⇩			
	-30° C (-22° F)	⇩	↑			
Sentinel mode Runtime Gas / Diesel	4 min./ 8 min.				↑	↑
	8 min./ 16 min.				⇩	⇩
	18 min./ 36 min.				↑	⇩



Default settings:

AstroStart Alarm: Disabled

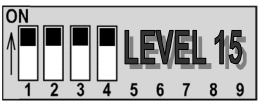
Chirp: Enabled

Additional sensor programmed in: Other Sensor

OEM alarm detection through the horn (Alarm Link): Disabled

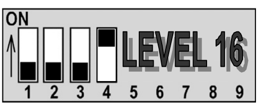


ALARM						
STAGE 1 - LEVEL 14		**5**	**6**	**7**	**8**	**9**
AstroStart Alarm	Alarm Disabled	↑	↑			
	Active Arming	⇩	⇩			
	Semi-Passive Arming	↑	⇩			
	Passive Arming	⇩	↑			
Chirp	Enabled			⇩		
	Disabled			↑		
Additional Sensor configuration	Other sensor				⇩	
	Trunk supervision				↑	
OEM alarm detection (Alarm Link)	Disabled					⇩
	Enabled-See page 9					↑



Default settings:
Trunk command:
activates Trunk output

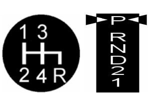
REMOTE SETTING						
STAGE 1 - LEVEL 15		**5**	**6**	**7**	**8**	**9**
Trunk command	Activates Trunk output					⇩
	Activates Utility 1 output					↑



Default settings:

Vehicle Type = Manual Transmission

Manual safety sequence initialized by:
2 Parking brake activation



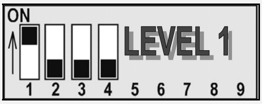
VEHICLE TYPE						
STAGE 1 - LEVEL 16		**5**	**6**	**7**	**8**	**9**
Vehicle Type	Manual Transmission	**See Note 1**				
	Automatic transmission	↑	↑	↑		
 Manual sequence initialized by:	2 Parking brake activation				⇩	⇩
	1 Parking brake activation **See Note 2**				⇩	↑
	Activation and deactivation by Remote control **See Note 3**				↑	⇩
	Activation by Remote control and deactivation when door is closed				↑	↑

Note 1: If **any one** of the Dipswitches 5, 6 or 7 is in the OFF position, level is set to **MANUAL TRANSMISSION MODE**. The module automatically sets to Manual Transmission mode when an interface is connected.

Note 2: The safety sequence initialized by a single parking brake activation is less recommended since it is transparent and users could release the clutch pedal before realizing the engine is still running.

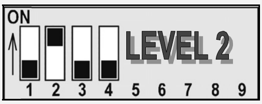
Note 3: The Turbo mode cannot be used with this mode

STAGE 2



Accessory Output
P4 Connector, Pin 2

Default setting:
Accessory



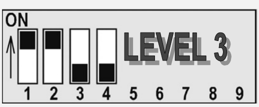
Parking Light Output
P4 Connector, Pin 3

Default setting:
Parking Light

Note: The « Accessory » option is not available on this output.

ACCESSORY & PARKING LIGHT RELAY						
STAGE 2 - LEVEL 1 AND 2	**DEFAULT LEVEL**	**5**	**6**	**7**	**8**	**9**
Pulse Before Start		⇩	⇩	⇩	⇩	⇩
Pulse After Shutdown		⇩	↑	⇩	⇩	⇩
Activated While Running		⇩	⇩	↑	⇩	⇩
Parking Lights	2	⇩	↑	↑	⇩	⇩
Pulse After Startup		⇩	⇩	⇩	↑	⇩
Pulse on 2nd Unlock		⇩	↑	⇩	↑	⇩
Ignition		⇩	⇩	↑	↑	⇩
Accessory (not available on P4-3)	1	⇩	↑	↑	↑	⇩
Starter		⇩	⇩	⇩	⇩	↑
Trunk Release		⇩	↑	⇩	⇩	↑
Pulse after Ignition Off (1 min. duration)		⇩	⇩	↑	⇩	↑
Dome Light		⇩	↑	↑	⇩	↑
Horn		⇩	⇩	⇩	↑	↑
Utility 1		⇩	↑	⇩	↑	↑
Utility 2		⇩	⇩	↑	↑	↑
Utility 3 (1 second fixed time)		↑	⇩	⇩	⇩	⇩
Utility 4 (1 second fixed time)		↑	↑	⇩	⇩	⇩
Deactivated		⇩	↑	↑	↑	↑

STAGE 2



Default settings:
Start confirmation on demand: Enable

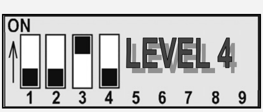
2nd Lock confirmation with Horn

Turbo Mode: Disable

Dome light activation when engine stop: Disable

MISCELLANEOUS CONFIGURATIONS						
STAGE 2 - LEVEL 3		**5**	**6**	**7**	**8**	**9**
Start confirmation on demand	Enabled	⇩				
	Disabled	↑				
2nd Lock confirmation type	Horn		⇩			
	Siren		↑			
Turbo Mode	Disabled			⇩		
	Enabled			↑		
Turbo Mode runtime	1 minute				⇩	
	2 minutes				↑	
Dome light activation when engine is stopped (by the Key)	Disabled					⇩
	Enabled					↑

STAGE 2



Default setting:
P9 LED output indicate the status of: the Alarm, Anti-theft and Manual Sequence

MISCELLANEOUS CONFIGURATIONS (2ND PART)						
STAGE 2 - LEVEL 4		**5**	**6**	**7**	**8**	**9**
P9 LED output indicates the status of:	Alarm, Antitheft and Manual Sequence	⇩				
	Safety Sequence Only	↑				

Diagnostic Codes

When the module is in operating mode (ready to start), the LED may display different diagnostic codes for troubleshooting. It flashes a certain number of times (see table) after an unsuccessful attempt to remote start or after a runtime interruption. The numbers of flashes depend on the reason for shutdown.

Codes can also be read on the parking lights after a request from the remote. See the "Table of commands" in the owner's guide.

CODE	REASON FOR INTERRUPTION
1	Stopped by remote control / trigger input - P10.
2	Stopped by pressing on the brakes, (-) outputs are overloaded or faulty ground.
3	Shutdown controlled by alarm condition
4	No tachometer reading (rpm). **Note:** If the engine **does not crank** during a start cycle, it is normal that no tachometer signal is generated. This can happen when the vehicle is equipped with an immobilization system (Anti-start). Make sure this system is correctly interfaced.
5	Hood opened.
6	Stopped by manual interface (Invalid safety sequence).
7	Ignition already in "ON" position.
8	Disabling switch in "OFF" position or thermal protection (P2-9 and/or P10 to P16 overloaded).
9	Run time expired.
10	Remote start failed after three attempts. **Note:** If the engine starts, then immediately stops for no apparent reason during a start cycle, it may be that the vehicle is equipped with an immobilization system (Anti-start). Make sure this system is correctly interfaced.
11	Tachometer signal already present at Start attempt.
12	RPM above 3000 (if "Enabled" at Level 12). Verify your tachometer setting. **Note:** Can be caused by inadequate setting of number of cylinders.
13	RPM below idling. **Note:** Can be caused by inadequate setting of number of cylinders.
14	Safety sequence broken by parking brake.
15	Safety sequence broken by opening a door.
16	Internal failure.
17	Module programming is done through receiver plug (Multitest II).
19	Manual interface not connected correctly to remote start module.
20	Manual interface detected when the unit was programmed in "Automatic transmission".

SAFETY SEQUENCE NOT ACCEPTED

If the control module refuses to validate the safety sequence, note that the code must be read **before** brakes are pressed or a start command is sent, because this will replace the current code with code 6 and you will have no indication of the reasons for failure to start.

If no code is generated, the manual interface may be the cause for one of the following reasons:

- A door was open.
- Parking brake was not applied.
- Engine was not running during the sequence (no power to the ignition or no tach signal).

VERIFICATION OF INSTALLATION

Make sure that the module is set to desired mode, Automatic Transmission or Manual Transmission, at Stage 1 - Level 16 of programming **before** proceeding with main harness test.

STEP 1: ENGINE TAKEOVER TEST (CONTINUOUS MODE)

This test will help you verify if **all required** vehicle circuits are properly powered up with the remote start.

Programming should be performed before attempting to check the system since some outputs (e.g. immobilizer, additional ignitions) need to be configured properly to prevent error codes from being stored in the vehicle's ECM.

Check connections to the P4 harness with the following test:

- Close all doors.
- Put gearshift lever in neutral (N) and release the parking brake.
- Start vehicle with ignition key.
- Activate parking brake once or twice, depending on the module programming (the purpose of this is to allow the control module to take over the engine).
- Activate continuous mode doing the Start command (2 commands are required if Turbo mode's enabled)
- Withdraw key from the ignition switch.

The engine should keep running. Make sure that all functions operate properly:

- no warning indicators;
- charging system;
- climate controls;
- parking lights;

If any of these features fail to operate or if the engine stalls, additional relays may be required to activate additional circuits or a programming may need to be changed. Read the diagnostic code on the control module LED and refer to the table of diagnostic codes on page 24 for a description of the problem.

STEP 2: FULL START TEST

WARNING!! There is no need to attempt a remote start if the Engine takeover test procedure fails.

Start vehicle using the remote transmitter.

For manual transmission, execute the safety sequence, as programmed in Stage 1 - Level 16 and described in the User Manual.

The vehicle should start and run normally with the circuits functioning correctly as in Step 1 above.

Note: When the remote starter is installed on a vehicle equipped with a transponder type immobilization system, it is preferable to complete the installation of the control module and to test it before proceeding with the connection of the interface that neutralizes the vehicle's immobilization system (anti-start). To do so, test the remote starter with a key inserted in the key cylinder. Do not turn the key.

- If everything works fine, install the immobilizer interface and make sure that the vehicle can still be remote started.
- If the vehicle does not start, see the diagnostic code reference chart. This code will tell you where to look to solve the problem. You'll need to solve this problem and have the remote starter working with a key inserted in the key cylinder before installing the immobilizer interface to the vehicle.

POST-INSTALLATION AND SECURITY TESTS

When installation is complete, check all safety devices.

Make sure that the engine does not start or that it stops when:

- disabling switch is in "OFF" position;
- hood is opened;
- engine speed exceeds 3000 RPM; (if programmed in Stage 1 - level 12)
- brakes are applied.

Also check that all functions/devices operate normally during a remote start.
Pay attention to the following points:

- vehicle charging system;
- heating and air-conditioning system;
- door-lock functions (remote control);
- run time (programming);
- starter does not grind when engine starts;
- all options (defogger, trunk release, etc.);
- remote control range;
- LED on main unit.

For manual transmission vehicles, in addition to the standard safety checks, make sure that opening **ANY** door breaks the safety sequence.

Proceed as follows:

1. Execute the safety sequence as described in the User Manual.
2. Remote start and stop the engine to confirm that the sequence is valid.
3. Open and close **one** door only.
4. Try to remote start engine again to confirm that opening that door broke the sequence.
5. Engine **MUST NOT START**. If it does, it means the manual interface cannot detect the opening of the door. Check the door circuit connections then repeat test at step 1.
6. Repeat steps 1 through 5, making sure you open **A DIFFERENT DOOR** in step 3, until **ALL THE DOORS** have been checked, **INCLUDING THE HATCHBACK.**
7. Repeat steps 1 through 5, but this time by releasing the parking brake in step 3.

Note: If the rear seats fold down, the trunk should be considered as a door. You will have to add a trunk detection switch. See "Connecting the Door Switches and Motion Detector" in the Manual Interface instruction.
Part no. RS-MI.

THE INSTALLATION IS NOT SAFE IF

OPENING ANY DOOR DOES NOT BREAK THE SAFETY SEQUENCE THAT NEUTRALIZES THE START.

THERE IS A RISK THAT THE GEARSHIFT LEVER CAN BE LEFT OR PLACED IN GEAR WITHOUT THE SYSTEM BEING ABLE TO DETECT IT.

THIS MEANS THAT THE SYSTEM COULD EXECUTE A REMOTE START WHILE IN GEAR.

CODE LEARNING OF TRANSMITTER (S)

ALL REMOTES INCLUDED IN ASTROSTART REMOTE STARTER KITS ARE FACTORY PROGRAMMED. THERE IS NO NEED TO PROGRAM THEM AT THE INSTALLATION.

Remote programming can be done in two different ways:

WITH THE DIP SWITCHES

The easiest and fastest way, when you have access to the control module, is by the Dipswitches.

- Simply put the Dipswitch #8 to ON and press the brakes.
- Enter all desired remotes, one after the other, to the memory slots of the control module by pressing any button of the remote. (Be careful not to send a Panic command). When the programming of the remote is done, the parking light switch will flash once and the control module LED will blink rapidly.
- Repeat the above procedures for each remote control that has to be programmed. A maximum of 4 remotes can be programmed into a single control module.
Note: When the first code learning command is sent, all the old codes are cleared out. Therefore, if you want to add a new remote, all the old ones must be reprogrammed as well.
- Once the programming of all remotes is done, put Dip switch #8 back to OFF and press the brakes.
- Remote(s) is (are) now programmed to the system and ready to use.
The memory slots 3 and 4 activate an output called "Ground when Unlock by User 2" allowing different functions in the vehicle to be controlled by a different user when Unlocking.

WITH THE IGNITION KEY

One or more remote transmitters can be added without needing to access the remote start control module. To do so, the programming is accessed as follows:

- Open the hood and make sure the switch is making contact
- Place key in the ignition and turn to the "RUN" position
- Press on the brakes once
- Within 10 seconds, turn the key from "RUN" to "STOP" position 3 times. If this sequence is correctly carried out, the control module will flash the parking lights (4 flashes). You may then proceed to the next step.
- Press any button on the new remote control (be careful not to send a Panic command).
When access code of the new remote control is memorized, the control module will confirm with flashing parking lights (1 flash).
- Repeat the above procedure for each remote control that has to be programmed.
Note: When the first code learning command is sent, all the old codes are cleared out. Therefore, if you want to add a new remote, all the old ones must be reprogrammed as well.
- Once the remotes are learned, press on the brakes.
- Remote(s) is (are) now programmed to the system and ready to use.
Memory slots 3 and 4 activate an output called "Ground when Unlock by User 2" allowing different functions in the vehicle to be controlled by a different user when Unlocking.